

CLAIMS

1. An amino acid sequence comprising any one of the amino acid sequences presented as SEQ ID No. 7, SEQ ID No. 9 or SEQ ID No. 11, or a variant, homologue or fragment thereof.
2. A nucleotide sequence encoding the amino acid sequence as defined in claim 1.
- 10 3. A nucleotide sequence selected from:
 - (a) a nucleotide sequence comprising any one of the nucleotide sequences presented as SEQ ID No. 8, SEQ ID No. 10 or SEQ ID No. 12, or a variant, homologue or fragment thereof;
 - 15 (b) any one of the nucleotide sequences presented as SEQ ID No. 8, SEQ ID No. 10 or SEQ ID No. 12, or the complement thereof;
 - (c) a nucleotide sequence capable of hybridising any one of the nucleotide sequences presented as SEQ ID No. 8, SEQ ID No. 10 or SEQ ID No. 12, or a fragment thereof;
 - 20 (d) a nucleotide sequence capable of hybridising to the complement any one of the nucleotide sequences presented as SEQ ID No. 8, SEQ ID No. 10 or SEQ ID No. 12, or a fragment thereof; and
 - (e) a nucleotide sequence which is degenerate as a result of the genetic code to the nucleotides defined in (a), (b), (c) or (d).
- 30 4. A nucleotide sequence according to claim 2 or claim 3 operably linked to a promoter.
5. A vector comprising the nucleotide sequence according to any one of claims 2 to 4.
- 35 6. A transformed host cell comprising the nucleotide sequence according to any one of claims 2 to 5.

7. A host cell comprising the nucleotide sequence according to any one of claims 2 to 5, wherein the nucleotide sequence is heterologous to the genome of the cell.

5 8. A process of preparing an amino acid according to claim 1 comprising expressing an appropriate nucleotide sequence according to any one of claims 2 to 4.

9. Use of an amino acid sequence presented as any one of SEQ ID No.s 7, 9, 11, or a variant, derivative or homologue thereof, to prepare a foodstuff, preferably a bakery product
10 or a substance (e.g. a dough) for making same.

10. Use of an amino acid sequence presented as any one of SEQ ID No. 5 or a variant, derivative or homologue thereof, to prepare a foodstuff, or a substance (e.g. a dough) for making same.

15 11. A foodstuff, such as a bakery product or a substance (e.g. a dough) for making same, comprising or prepared from an amino acid sequence presented as any one of SEQ ID No.s 7, 9, 11, or a variant, derivative or homologue thereof.

20 12. A bakery product or a substance (e.g. a dough) for making same comprising or prepared from an amino acid sequence presented as SEQ ID No. 5, or a variant, derivative or homologue thereof.

25 13. Use of an amino acid sequence comprising the amino acid sequence presented as any one of SEQ ID No.s 3, 5, 7, 9, 11, or a variant, derivative or homologue thereof, to prepare a dough that is less sticky than a dough comprising a fungal xylanase.

14. A xylanase from *Bacillus subtilis* or a mutant thereof, wherein the xylanase is suitable for preparing non-sticky dough.

30 15. A *Bacillus subtilis* strain capable of producing a xylanase suitable for preparing non-sticky dough.

16. A *Bacillus subtilis* according to claim 15 wherein said strain is strain 168.

35 17. A xylanase from a *Bacillus subtilis* strain, wherein the xylanase is suitable for preparing non-sticky dough.

18. A xylanase according to claim 17 wherein the *Bacillus subtilis* strain is strain 168.

5 19. A xylanase preparation, wherein the xylanase preparation is substantially free of glucanase enzyme(s).

20. A bakery product prepared using the invention of any one of the preceding claims.

10 21. An endo- β -1,4-xylanase inhibitor obtainable from wheat flour.

22. An inhibitor according to claim 21, wherein the inhibitor has a MWT of about 40 kDa (as measured by MS or SDS PAGE).

15 23. An inhibitor according to claim 21 or claim 22, wherein the inhibitor has a pI of about 8 to about 9.5.

24. An inhibitor according to any one of claims 21 to 23 wherein the inhibitor comprises one or more of the amino acid sequences presented as SEQ ID No. 13, SEQ 20 ID No. 14, SEQ ID No 15, SEQ ID No. 16, SEQ ID No. 17, SEQ ID No. 18 and/or SEQ ID No. 19, or a variant, homologue, or fragment thereof.

25. An inhibitor according to any one of claims 21 to 24 in an isolated form.

25 26. A method for determining the degree of resistance of a xylanase to a xylanase inhibitor, wherein the method comprises:

(a) contacting a xylanase of interest with an inhibitor as defined in any one of the preceding claims; and

30 (b) determining the extent to which the inhibitor inhibits (if at all) the activity of the xylanase of interest.

27. A xylanase identified by a method according to claim 26, wherein the xylanase has 35 a high degree of resistance to the inhibitor.

28. A foodstuff comprising a xylanase according to claim 27, preferably wherein the foodstuff is a bakery product.

29. A process comprising the steps of:

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- (a) performing a method according to claim 26;
- (b) identifying one or more xylanases having a high (or medium or low) degree of resistance to the inhibitor;
- 10 (c) preparing a quantity of those one or more identified xylanases.

30. A process comprising the steps of:

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- (a) performing a method according to claim 26;
- (b) identifying one or more xylanases having a high (or medium or low) degree of resistance to the inhibitor; and
- 20 (c) preparing a dough comprising the one or more identified xylanases.

31. A method for identifying a bacterial xylanase or mutant thereof suitable for use in the preparation of a baked foodstuff, the method comprising

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- (a) incorporating a bacterial xylanase of interest in a dough mixture; and
- (b) determining the stickiness of the resultant dough mixture;

such that the bacterial xylanase or mutant thereof is suitable for use in the preparation of
30 a baked foodstuff if the resultant dough mixture has a stickiness that is less than a similar
dough mixture comprising a fungal xylanase.

32. A foodstuff comprising a suitable bacterial xylanase or mutant thereof identified by a method according to claim 31, preferably wherein the foodstuff is a bakery product.

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33. A process comprising the steps of:

(a) performing a method according to claim 32;

5 (b) identifying one or more xylanases suitable for use in the preparation of a baked foodstuff;

(c) preparing a quantity of those one or more identified xylanases.

10 34. A process comprising the steps of:

(a) performing a method according to claim 32;

15 (b) identifying one or more xylanases suitable for use in the preparation of a baked foodstuff; and

(c) preparing a dough comprising the one or more identified xylanases.

35. Use of a bacterial xylanase or mutant thereof that is capable of being identified as
20 being suitable by a method according to claim 32 for the preparation of a non-sticky
dough.

36. A method for identifying a xylanase composition or a medium in which a xylanase
is to be prepared or a medium to which a xylanase is to be added that is to be suitable for
25 use in the preparation of a baked foodstuff, the method comprising

(a) providing a composition containing the xylanase of interest or a medium in
which the xylanase is to be prepared or a medium to which the xylanase is to be added;
and

30 (b) determining the presence of active glucanase enzyme(s) in the
composition or medium;

such that if there is at most a low level of active glucanase enzyme(s) in the composition
35 or medium then that composition or medium is suitable for the preparation of a baked
foodstuff.

37. A foodstuff comprising a suitable composition or medium identified by a method according to claim 16, preferably wherein the foodstuff is a bakery product.

38. A process comprising the steps of:

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(a) performing a method according to claim 36;

10 (b) identifying one or more compositions or mediums suitable for use in the preparation of a baked foodstuff;

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(c) preparing a quantity of those one or more identified compositions or mediums.

39. A process comprising the steps of:

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(a) performing a method according to claim 36;

20 (b) identifying one or more identified compositions or mediums suitable for use in the preparation of a baked foodstuff; and

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(c) preparing a dough comprising the one or more identified identified compositions or mediums.

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40. Use of a composition or medium that is capable of being identified as being suitable by a method according to claim 36 for the preparation of a non-sticky dough.

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41. A method comprising:

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(a) determining the amount of inhibitor according to any one of claims 21 to 24 in a wheat flour, which wheat flour may be wheat flour *per se* or may be present in a medium comprising same;

35 (b) selecting a suitable xylanase for addition to the wheat flour and/or selecting a suitable amount of a xylanase for addition to the wheat flour; and

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(c) adding the suitable xylanase and/or suitable amount of the xylanase to the wheat flour.

42. A combination method comprising a first step comprising the method of claim 26 and a second step comprising the method of claim 31.

5 43. A combination method comprising two or more of the following steps: a first step comprising the method of claim 26, a second step comprising the method of claim 31, a third step comprising the method of claim 36; and a fourth step comprising the method of claim 41.